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ABSTRACT

This report presents termination and followup evaluations of a parent training program based on behavior modification principles. Treatment termination outcome data was obtained for 22 families, and followup data was collected on 14 of these families at three and eight months after treatment. Results indicated a fairly high level of success at termination on the basis of parent-collected observational data, parent attitude change toward their children, and parent attitude concerning the process and outcome of treatment. Modest levels of success were evidenced on the basis of behavioral data recorded by trained observers in the home. Families who participated in followup demonstrated greater cooperation and involvement with the treatment program than those who did not participate. In all other respects, however, these two groups were similar. Followup data on parent attitude measures demonstrated maintenance of the treatment effects. Parent observational data were incomplete but also showed maintenance in followup. For the subsample of 14 cases, home observation records indicated a nonsignificant decline in deviant behavior at termination followed by a nonsignificant but systematic increase in deviant behavior during followup. The meaning and implications of these discrepant findings were discussed and compared with results from other laboratories. (Author)

MULTIPLE CRITERIA FOLLOW-UP OF BEHAVIOR MODIFICATION WITH FAMILIES[1]

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In spite of an increasing proliferation of behavior modification programs for family problems, there have been relatively few follow-up evaluations of the effectiveness of this form of treatment. The importance of follow-up studies is widely recognized but the time and expense required seems to have discouraged that research which would provide the most critical test of any treatment procedure.

Certainly the most comprehensive follow-up investigations of behavioral interventions in families have been contributed by Patterson (1974a, b) who has used home observation data and daily parent reports on the occurrence of child referral symptoms as outcome criteria. In the Patterson program, follow-up probes occurred once a month for the first six months after termination and once every two months thereafter for an additional half year. In some cases, additional intervention was required during the follow-up period and Patterson (1974a) reported an average per case of 1.92 hours of professional time devoted to such intervention. Of the 27 cases treated in the Patterson program, relatively complete follow-up home observation data was available for 20 cases. Since parent report data collection was begun later in the program, relatively complete data was available for only 14 cases. Both outcome measures revealed a significant drop in child deviant behavior from baseline to termination and, in general, maintenance of that behavior change throughout the follow-up year. The parent data on occurrence of referral symptoms showed a nonsignificant trend toward greater improvement during the follow-up period.

Ferber, Keeley, and Shemberg (1974) have recently reported far more discouraging results, however, with a program modeled after Patterson's work. Although systematic behavioral observation in the home was conducted during intervention, follow-up was done by clinical interview at one month and by a telephone call to parents one year after termination. Observation data was obtained on only five of the seven families, and follow-up obtained on only four. The authors characterized their results as showing positive short-term changes for only three of the seven families, and long-term positive changes for only one. This program, which was limited to ten treatment sessions, was clearly less comprehensive than the Patterson program both in terms of professional time devoted to treatment and the magnitude of evaluation.

More optimistic results were reported by Coe and Black (1972) who compared the results of "family operant" therapy with the regular outpatient clinic treatment which would have otherwise been provided and with a combination of the two treatment approaches. Four families were given family operant therapy while five families were treated in each of the other two groups. Parent collected data on their children's desirable and undesirable behaviors provided the sole criterion of outcome. In general, this data demonstrated superiority for the two groups in which family operant treatment was employed, and these therapeutic gains were maintained at the six-month follow-up evaluation.

Finally, Alexander and Parsons (1973) have provided some very encouraging follow-up data on the effects of behavioral intervention in families with delinquent children. In this study, 46 families were treated with behavioral intervention and compared with families who received either client-centered therapy, psycho-dynamic family therapy, or no treatment. At termination, the results of these treatment procedures were assessed through observations of family interaction in a discussion session. At

that time, the family interaction measures revealed that families who had received behavioral intervention demonstrated greater equality in talk-time, less silence, and more positive interruptions than families in any of the other groups. More impressively, the follow-up data on delinquency recitivism taken up to 18 months after treatment indicated that recitivism was substantially lower for the behavioral intervention group than would have been expected on the basis of the county-wide rate (26% versus 51%). Furthermore, the two comparison treatment groups and the no treatment control group achieved an equal or greater recitivism rate than the county average. The superiority of the behavioral intervention group was statistically significant in all comparisons.

Thus, the little available follow-up data from three out of four laboratories is encouraging with respect to the long-term beneficial effects of behavioral intervention with families. However, two criticisms can be made of these follow-up investigations: In only one study (Patterson, 1974 a, b) were multiple criteria employed; and in only one other (Ferber, Keeley, & Shemberg, 1974) were parents asked to report on their feelings about treatment and its effect on their subsequent evaluation of the treated child. In a recent study from this laboratory (Lobitz, G. & Johnson, 1974), it was found that referred children could best be discriminated from a matched group of nonreferred children not on the basis of their observed behavior but on the basis of their parents' global attitudes about them. The parent attitude measure correctly assigned 90% of the sample of 54 children to the appropriate groups while the behavioral measures yielded a considerable degree of false assignment. In view of these findings, multiple criteria, including assessment of parental perceptions, seems warranted.

The present report summarizes outcome and follow-up results from a family behavior modification treatment program which was modeled in a general way after that described by Patterson and his associates (Patterson, Cobb, & Ray, 1973; Patterson, Ray, & Shaw, 1968; Patterson & Reid, 1973). The termination outcome results for the first 17 cases seen in this project were reported in detail by Eyberg and Johnson (1974). The present report summarizes termination results for 22 families and follow-up results at three and eight months after termination for a subsample of 14 families. Multiple criteria outcome assessments of family behavior and attitude were obtained at each testing period.

Method

Subjects

Twenty-two families having a child believed to exhibit active behavior problems in the home participated in the treatment program. "Active behavior problems" was used to refer to aggressiveness, destructiveness, disobedience, hyperactivity, temper tantrums, or high rate activity with annoyance value. Families were not accepted into this program if the problem child was severely retarded, had experienced severe and documented brain damage or exhibited behavior problems which would ordinarily cause him to be labeled "autistic" or "schizophrenic."

All but three of the families had both parents in the home and all but two of the treated children were boys. The educational level of parents ranged from 8 to 21 years with the mean of 12.3 for mothers and 13.4 for fathers. Income level for families ranged from $2,000 to $15,000 with a mean of $7,312. The treated children ranged in age from 4 to 12 with a mean age of 7.85.

Procedures

These families were seen at the University of Oregon Psychology Clinic during a three year period between 1970 and 1973 by 18 graduate student therapists who saw client families in permanent two-person teams.[2]

All families, except those on welfare, were required to pay for services on a sliding fee schedule adjusted to ability to pay. Assessment was done prior to intervention, at termination and at three and eight months following termination. Families were paid $30 for participating in the second follow-up but no payment was made at any other assessment period.

As indicated earlier, the treatment procedures were generally modeled after those outlined in some detail by Patterson and his associates (Patterson, Cobb, & Ray, 1973; Patterson, Ray, & Shaw, 1968; Patterson & Reid, 1973), and a general description of the procedures used may be found in Eyberg and Johnson (1974).[3] This program, which was of an educational nature and based upon the principles of social learning theory and techniques of behavior modification, was limited to twelve weekly sessions. The first 17 cases were also employed for a study of the effects of a contingency contracting procedure and effects associated with order of treated problems (Eyberg & Johnson, 1974). Contingency contracting procedures were employed for the last five cases in view of the prior success associated with this procedure.

In addition to the formal measures of outcome to be outlined here, the therapists in each case were required to rate the cooperation of the treated family and keep records on the attendance and completion of assigned data by the families. Unless otherwise indicated, all of the formal outcome

measures were obtained prior to intervention, at termination and at three and eight months following termination. While the therapists generally arranged for the assessments during each period, they were completely uninvolved in the administration of tests at termination and follow-up. The tests were administered at termination by a research assistant not otherwise connected with the treatment and at follow-up, tests were mailed to families under the name of the research director. Furthermore, family members were explicitly told that their evaluations of the therapy process and the therapists themselves would not be seen by the therapists.

Verbal report measures. A form of the Becker (1960) Bi-Polar Adjective Checklist was employed to obtain parental description of the treated child.[4] This form has previously been employed by Patterson, Cobb, and Ray (1973) to assess parents' change in perception of their children following treatment.

The Therapy Attitude Inventory was constructed specifically for the present research to assess parents' satisfaction with the process and outcome of the treatment program and with the therapists themselves. This inventory was administered at termination and at both follow-up periods.

Parent observation data. The therapists required both parents to record the to-be-treated child problem behaviors for a one-week baseline period prior to begining an intervention for them. Parents recorded the frequency and/or duration of the behavior of interest for a specified time each day. Recording time varied from one-half-hour per day for very high rate or situation specific behaviors to the entire day for lower rate behaviors. During intervention, behavioral recording continued as long as the behavior remained a focus of intervention. Whenever possible, one week of parent observation data was obtained at each follow-up period. Examples of typical

behaviors subject to parent data collection were compliance to standing commands such as getting up in the morning and off to school on time, compliance to running commands, instances of aggression, tantrumming, destructiveness, sassiness, and duration of appropriate play with siblings or peers.

Home observations. Observations were conducted for five consecutive week days in the forty-five minutes prior to the family's typical dinner hour. All family members were required to be present during observations and to remain in a two-room area within view of the observers. The family was restricted from watching television or talking to the observers and was asked to limit incoming phone calls and visitors. The parents were instructed to try to behave as if the observers were not present and give as typical a picture of regular family interaction as possible. A different observer conducted each set of observations for a given family, and, typically, was joined by a calibrating observer during at least one night of each observation period. Considerable effort was made to keep the observers uninformed as to whether the family observed was in treatment or one recruited for research on normal families. In addition, observers were asked to reveal the nature of any biasing information through the use of a questionnaire completed after each observation period. Observers considered themselves informed of the families' clinical status in 39% of their home visits. In 42% of these cases, observers also considered themselves informed as to the treatment stage (i.e., baseline versus post-baseline), but their information was correct only 80% of the time. Thus, only 13% of the observations were done under conditions where the observer was correctly informed both of the clinical status and treatment phase of the family.

The observation system employed was a modified version of that devised by Patterson, Ray, Shaw, and Cobb (1969) which employs 35 distinct behavior categories. This system was devised to focus on the target child and his interactions with one or more family members. Interactions were recorded continuously in pairs of behaviors consisting of the child's actions and the responses of other family members.

Young women who were paid as research assistants served as observers. They had been trained extensively in the use of the coding system before being employed in this investigation, and they continued training sessions on a weekly basis throughout the period of this research.

Two behavioral summary scores were derived from the observation system for the purposes of the present study. The first is the child deviant behavior percent which has been employed in all previous studies using this observational system. This score represents a sum of 15 behaviors previously designated as deviant by parents of normal children (Adkins & Johnson, 1972). These behaviors include demand attention, violation of standing command, destructiveness, high rate behavior, humiliation, noncompliance, physical negative, smart talk, tease, tantrum, whine, yell, threatening command, ignore, and negativism. Evidence for the validity of this composite score has been discussed elsewhere (e.g., Johnson & Bolstad, 1973; Johnson & Lobitz, 1974b; Lobitz, G. & Johnson, 1974). A subset of these deviant behavior categories were designated in each case as representing targeted deviant behaviors. These codes varied for each case and represented those categories which the case therapists believed should be influenced by the treatment programs completed.

Observer agreement on the deviant behavior percent has been shown to be acceptable in a number of investigations from this laboratory. Computed by correlating the regular observer's score for an entire session with that obtained by the calibrating observer, the agreement correlations have varied from .80 (Johnson & Bolstad, 1973) to .95 (Lobitz, W. & Johnson, 1974). There were a total of 59 observer agreement checks for the families involved in this report with at least one check per family. Since all of the present data including follow-up data was collected during the same time period and with the same corps of observers involved in all of the other research and since its analysis would have been expensive and redundant with that already available, agreement data was not re-computed. The observer agreement correlation on the deviant behavior percent for the first 17 cases at baseline and termination was .94 (Eyberg & Johnson, 1974).

Since a different subset of deviant child behaviors was designated for each case, no observer agreement correlation could be computed on targeted deviant behavior. Previous research with the same code (Johnson & Bolstad, 1973) indicated that the median Spearman-Brown corrected agreement correlation for 11 of the 15 deviant behavior codes used was .91 (n = 47).[5]

Results

A total of 65 families were seen for at least one intake interview in connection with the treatment program outlined earlier. In 18, or 28%, of these cases, the parents and therapists mutually agreed on termination of contact. In these cases, the parents were referred elsewhere since child problems in the home were not of primary importance. The child's behavior problems in school or the parents' marital problems were primary in most of these cases. Another 6 cases, or 9%, were seen for brief treatment of three

sessions or less. These families required minimal intervention but were inappropriate for the extended program outlined. A total of 14 families representing 22% of the sample terminated contact on their own following intake but before treatment. Of the 27 cases beginning the longer term treatment, 5, or 18%, of those initiating dropped the program during its course. Thus, 22 cases remained for the extended treatment representing 34% of the initial sample.

Fourteen of the twenty-two families completing the current project participated in both the three-month and eight-month follow-up assessments. Termination results on all 22 cases will be summarized first. This will be followed by a comparison on all possible variables between those families who participated in all of the follow-up evaluations with those who did not. Finally, a summary of follow-up results will be presented.

Termination Outcome

The termination results as measured by both verbal report instruments are quite favorable. The Becker (1960) Bi-Polar Adjective Checklist was analyzed on the basis of five factors derived by Patterson (as in Patterson, Cobb, & Ray, 1973). The results on each factor were analyzed by one-way analyses of variance for repeated measures comparing the pretreatment and post-treatment means for mothers and fathers. Mothers evidenced a change on all five factors in the expected direction at the $p < .01$ level or beyond. Fathers evidenced a significant change in the expected direction for four of the five factors at the $p < .05$ level or beyond. Fathers did not significantly alter their impressions on the intellectual efficiency factor. If ratings of improvement on three or more

of the Becker factors is used as the criterion for improvement (as in Eyberg & Johnson, 1974), 89% of the parents would be classified as giving evidence of treatment success.

The Therapy Attitude Inventory included seven items concerning the parents' rating of treatment outcome and three items reflecting parent ratings of the therapists. All items were rated on a scale from 1 (indicating maximum dissatisfaction or deterioration in condition) to 5 (indicating maximum satisfaction or improvement). For all parents combined, the average rating for those items relating to therapy was 4.54, or between somewhat favorable and very favorable. The mean score for all parents on those questions concerning ratings of the therapists was 4.57. If an average rating of 4.25 on items relating to therapy effectiveness is designated as the success criterion, 81% of the parents in this sample would be considered to have given a successful rating.

The outcome results based on parent data were computed on the basis of the percent reduction from baseline observed in the last three weeks of active treatment for the individual behavior problem. An average percent reduction in child deviant behavior was then computed for each family. All families but two evidenced an average percent reduction of at least 47% in problematic child behavior with an average over all 22 cases of 71% reduction. One family achieved a reduction of 30% and another only 17%. If a criterion of 30% reduction is established for success (as in Eyberg & Johnson, 1974; Patterson, 1974a), then all but one case, or 95% of the sample, would be so rated.

Home Observation

Two summary scores were obtained fror the home observation for evaluation of outcome. The composite deviant behavior percent decreased slightly,

but not significantly, from a baseline average of 6.7% to a termination average of 6.1% ($F < 1$). If a 30% reduction is designated as the criterion of success (as in Eyberg & Johnson, 1974; Patterson, 1974a, b), only 41% of the cases would be rated successful on the basis of this measure.

The deviant behaviors which were designated in each case as targets of treatment programs were significantly lower at termination than at baseline ($F = 5.17$, $df = 1,20$, $p < .05$). Using the same 30% reduction criterion, 48% of the cases would be considered successful by this measure.

Assessment procedures involving standard situation tests in the laboratory were also employed at termination. The results on this measure for the first 17 cases were previously reported in Eyberg and Johnson (1974). Because these procedures were not continued in follow-up, analyses of results on this measure are not reproduced here.

Subject Attrition in Follow-up

As indicated earlier, only 14 families participated in both follow-up evaluations. All eight other families were contacted but refused to participate fully for one reason or another. Two families did participate in the first follow-up and one other contributed some data at the second follow-up. Prior to presenting the follow-up results, it was considered necessary to examine all possible differences between the 14 subject families who cooperated fully in follow-up with the eight families who did not. The comparisons were made on demographic variables, therapy outcome variables, and variables which reflect parental cooperation during treatment or the length and comprehnsiveness of treatment as delineated in Eyberg and Johnson (1974). There were no significant differences between these two groups on the education level of parents, family income, or age of the target child. There were significant differences, however, on some variables relating to parental

cooperation and length and comprehensiveness of treatment. Specifically, families who participated in the follow-up research had been given higher therapist cooperation ratings during treatment (t = 2.66, df = 20, p < .01), and these parents also collected a greater percentage of required data during treatment (t = 2.27, df = 20, p < .05). Additionally, the families participating in follow-up had a greater number of treatment sessions (t = 2.46, df = 20, p < .05) and a greater number of treated problems (t = 2.42, df = 20, p < .05). The two groups did not differ on parent attendance at therapy sessions or the average time lapse between treatment sessions.

Outcome variables were subjected to two-way analyses of variance for repeated measures. No significant differences were obtained on parent data, the Therapy Attitude Inventory, or the deviant behavior percent from home observations. All analyses of the Becker Adjective Checklist were nonsignificant with one trivial exception. Fathers in families who completed follow-up rated their children less favorably on Factor I, Relaxed Disposition, at both testing points.

The only important outcome variable for which a difference was observed was targeted deviant behavior. Since families who remained in follow-up had more sessions and treated more problems, a significantly greater number of codes were designed as "targeted" (t = 2.49, df = 19, p < .05). In line with this, the analysis of variance on targeted deviant behavior indicated that children involved in follow-up evidenced significantly more targeted deviant behaviors both before and after treatment (F = 4.65, df = 1,20, p < .05). There was no interaction between groups and sessions, however, indicating essentially equivalent change on this measure.

In general, then, families who participated in follow-up tended to be more cooperative in treatment and had more therapy sessions attending to a greater number of child behaviors. In every other respect, including all measures of treatment outcome and demographic characteristics, the two samples did not differ significantly.

Follow-up Results

One-way analyses of variance with repeated measures were employed on all outcome measures. For simplicity in analysis, only families with complete data on a given measure were included in these analyses. For the Becker (1960) Bi-Polar Adjective Checklist and home observation data, the following planned comparisons were performed: (a) Baseline versus the combination of Termination, Follow-up I and Follow-up II. (b) Termination versus Follow-up I and Follow-up II. (c) Follow-up I versus Follow-up II. Obviously, only comparisons b and c could be done on the Therapy Attitude Inventory results. Parent collected observational data could not be analyzed statistically and are presented descriptively.

Bi-Polar Adjective Checklist. The planned comparison results for the Becker (1960) inventory are presented in Table 1 for mothers and fathers

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Insert Table 1 About Here

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separately. The results are clear-cut in that all factors but one demonstrated a significant difference in the expected direction when comparing baseline with post-baseline observations, and no significant deterioration or improvement from termination in either follow-up assessment. The fathers' rating of the treated child's intellectual efficiency did not change significantly for any comparison.

Previous research from this laboratory has demonstrated that Factors I, III, and V are significantly correlated, and the combination of these factors has proven to be a useful and valid single index for this measure (Lobitz, G. & Johnson, 1974). These three factors, Relaxed Disposition, Lack of Aggression, and (Lack of) Conduct Problems, also most clearly reflect the behavior problems treated in this program. The outcome results for this combination score are presented in Figure 1. The statistical analyses of this data follow the

Insert Figure 1 About Here

same pattern as its component factors. There was a significant difference when comparing baseline with a combination of Termination, Follow-up I and II ($p < .01$ for both mothers and fathers) but no significant differences between Termination and Follow-up or between the two Follow-up assessments.

Parent observation data. Parent collected observational data was not instituted during follow-up until late in the second year of this three year project. Such data were not collected initially in order to reduce the response-cost of follow-up to parents and because control during this period was limited. When the need for this data became apparent, the therapists were instructed to ask parents to collect it just as they had done in treatment for at least two of the treated behavior problems. As anticipated, cooperation in this effort both from the therapists, who were usually no longer associated with the practicum project, and the parents themselves was problematic. As a result, parent observation data is available for only three families at both follow-up periods, and for one additional family at Follow-up II. The average percent reduction for three families at Follow-up I was 64.0% with a range from 50% to 76%. For the same three families, the average percent

reduction at Follow-up II was 77% (range 56% to 94%). The percent reduction for the fourth family at Follow-up II was 98%. Due to the many problems involved with this data collection criteria at follow-up, these results should not be viewed as representative of the sample as a whole, but, rather indicative of the kind of results obtained with the more cooperative and conscientious therapists and families.

Home observation. As might be expected from the termination results already presented, there were no significant changes in the deviant behavior percent for any comparison. For the fourteen cases involved in follow-up, there was a slight but nonsignificant decrease in the deviant behavior percent from 7.5% at baseline to 5.8% at termination. It then increased slightly to 7.6% at Follow-up I and 8.1% at Follow-up II.

The results for targeted deviant behavior indicate a noticeable decrease from a baseline average of 115.9 to a termination average of 79.9 for these 14 cases. However, targeted deviant behavior rate increased systematically through Follow-up I (average of 99.2) and Follow-up II (average of 106.0). None of the planned comparisons on this measure were significant, nor was a post hoc test comparing the targeted deviant behavior rates at baseline and termination. If the 30% reduction from baseline is used as the criterion for targeted deviant behavior, 38% of these 14 cases would be considered successful at termination, 46% at Follow-up I and 46% at Follow-up II.

Criterion summary. The proportion of cases considered successful by each criterion at each testing point are presented in Table 2. These data

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Insert Table 2 About Here

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are presented for all 22 cases at termination and separately for the 14 follow-up cases at each assessment period. In general, there is little fluctuation in the success proportions over time with the Therapy Attitude Inventory and deviant behavior percent showing slight drops in success and the targeted deviant score and Becker inventory showing slight increases. Clearly, parent data, the Becker Adjective Checklist and the Therapy Attitude Inventory yield high success rates while the home observation data show much more modest estimates of success.

Discussion

The interpretation of the results of this study are not completely straightforward due to the discrepancies between evaluation criteria. The verbal report measures indicated a high level of treatment success which maintained very well through the eight-month follow-up testing period. Similarly high levels of treatment success were apparent at termination on the basis of parent data on treated problems. And, for those cases in which parent data could be obtained at follow-up, this source of data indicated continuance of the beneficial effects of treatment. On the other hand, home observation data on the total deviant behavior percent did not demonstrate any significant effects of the treatment program. A modest degree of treatment success was documented by the decreased rate of targeted deviant behavior at termination when all 22 cases were considered. This decline did not quite reach significance, however, for the 14 cases completing follow-up. Furthermore, there was a nonsignificant increase in targeted deviant behavior at the follow-up assessments. These home observation results are somewhat discrepant with those reported by Patterson (1974a, b), and a detailed discussion of the possible reasons for this discrepancy will be given later in this section.

For the present sample, at least, the appropriateness of the home observation criterion for treatment evaluation may be open to question. Seven, or 32%, of this referred sample had a deviant behavior percent below the normative mean established on a sample of 73 nonreferred children between the ages of 4 and 8 years of age, and 13, or 59%, of the sample had deviant behavior percent scores within one standard deviation above the normative mean. Thus, the appropriateness of this criterion is questionable since over half of the treated sample were within the "normal" range before treatment began.

In contrast, the verbal report measures seem to be the most relevant and important criteria for the present sample if the results on these measures do not simply reflect demand characteristics or expectancy effects. Most of the present sample was involved in an analysis comparing 27 referred families with 27 matched nonreferred families on several behavioral and attitudinal variables (Lobitz, G. & Johnson, 1974). In that study, the Becker (1960) Adjective Checklist was the only measurement instrument which differentiated accurately between the referred and nonreferred families. Although the percent of deviant behavior was significantly higher in the referred group, there was a good deal of overlap in distributions, and this index did not prove to be an accurate discriminator. This data suggests that a change in parental perception of the referred child would be the most universally important criteria for the kinds of children referred to this project.

The issue of subject response to demand characteristics or expectancy effects must always be addressed when evaluating verbal report data. Walter and Gilmore (1973) reported on a comparison of six families treated for four weeks in the Patterson (1974b) program with six families who received

a placebo group treatment. The treated group demonstrated a significant decrease in observed targeted deviant behavior and a significant decrease in parent rated child symptoms. The placebo group showed nonsignificant increases in targeted deviant behavior and parent rated child symptoms. However, when placebo group parents were asked by their therapists, "Has your child improved?" they all responded affirmatively. The similarity in results of parent reports on symptoms and observed deviance indicates that the former was probably not responsive to demand and expectancy but parents' answers to the global question obviously were. This very global assessment was loaded for such affects, however, since the question was asked verbally by the therapist after only a short treatment period (H. Walter, personal communication, 1974). Although this does represent the more typical clinical situation, the generalization of this finding to the present more detailed verbal report instruments administered by a person other than the therapist over extended time intervals and in a totally different context would be questionable. While it is probably true that verbal report measures are in general more susceptible to demand characteristics and expectancy effects than are behavioral measures, there is evidence to show that behavioral observations could be subject to the same problems (Johnson & Lobitz, 1974a; Kent, Fisher, & O'Leary, 1974; Lobitz, W. & Johnson, 1974). Furthermore, it seems logical to expect that demand characteristics and expectancy effects would be less crucial in determining parental responses to questionnaires at follow-up assessments. By follow-up, families have had little or no contact with the case therapists, and presumably would have less desire to please them or to justify their termination of treatment. Thus, it is the writers' belief that changes in parental perceptions of the children may constitute the most critical outcome variable

for this sample and that the results which reflect such beneficial changes represent more than simple response to demand characteristics and expectancy effects.

Certainly the discrepancies between verbal report and behavioral measures are far from unique in outcome studies of psychotherapy. Lang (1968), for example, has demonstrated and discussed the relative independence of verbal report, behavioral, and physiological measures of the anxiety construct. Unpublished research from this laboratory on 73 normal children and their parents revealed a low but significant correlation between the parents' ratings of the child on the Becker Adjective Checklist and the amount of deviant behavior demonstrated by the child at home. Thus, as with anxiety, the construct of child deviance may be fairly independent when measured by behavioral observation or parental report. In some families, it may be necessary to change only the parents' label, in others', only the child's behavior, and for some both factors may be appropriate targets of treatment programs.

In attempting to reconcile these discrepancies, however, it was interesting to note that the behavioral measures tended to show greater improvement as they became more closely tied to discrete behavior problems treated. Thus, parent records of the actual treated behaviors showed the greatest improvement, followed by observer records on those codes which would be related to treated problems, followed by a general index of child deviance. Many of the treatment programs designed for the present sample of families were very situation and time specific relating to behaviors at bedtime, mealtimes, and in the period prior to the child's leaving for school. Many other programs were devoted to the treatment of serious but infrequent behavior

problems such as tantrumming, physical aggression, and destructiveness. In all of these cases, the home observation measure would usually not have reflected any beneficial changes which may have occurred. One possible and parsimonious explanation of the present results would be that, in general, these treatment procedures were successful in reducing the rate of these situation and time specific behavior problems as well as the serious but low base rate behavior problems. These changes, in turn, affected the parental view of the child as reflected in the verbal report measures. The home observation data on targeted deviant behaviors provided a weak reflection of this change with the significance level of such change merely affected by sample size. There was some suggestion of minimal but nonsignificant deterioration in this effect at follow-up but such deterioration, if real, was not of sufficient magnitude to affect parent perception. And, if percent success by change in targeted deviant behavior is examined, no deterioration was observed at follow-up.

The interpretation of results given above is confirmed somewhat by current experiences in evaluating this treatment program through the use of unobtrusive audio recording equipment (Johnson, Christensen, & Bellamy, 1974). In this method of home observation data collection, the target child is asked to wear an audio transmitter during most of his waking hours at home. The transmitter broadcasts to a receiver located inconspicuously in the home, and the receiver is attached to a tape recorder which may be activated at random intervals by a timer (as in Bernal, Gibson, William, & Pesses, 1971). Neither the child nor his parents know the exact intervals during which the tape is activated ("random times"). The tape recorder may also be activated during pre-determined times when parents believe the child evidences the highest levels of

deviant behavior ("picked times"). In most of the five cases in which this method has been used, that interval has been the bedtime period. The results from these first few cases were uniform in suggesting that (a) the rates of deviant behavior during the picked time interval were considerably higher than during the random time intervals, (b) recorded deviant behavior decreased dramatically after intervention during the picked time, and (c) reductions in deviant behavior during random times were always less than those observed during the picked times and often quite minimal. In these cases, then, the same pattern emerged. There were considerable reductions in discrete treated behaviors during the crucial time intervals, but less or no decline in overall deviant behaviors at other times.

In spite of the above considerations, it should be noted that Patterson (1974a, b) has achieved general success with these home observation measures in approximately three out of four cases treated and the possible reasons for these discrepant results must be addressed. Therapy studies of the kind described here can never be true replications, but the general orientation, principles, and techniques employed in these two laboratories are similar. In exploring for differences which might account for discrepancies in results, the amount of time devoted to both treatment and assessment in all phases of the project appear most obvious. In the present project, therapist time involved a 1.5 hour intake session plus an average of 10.64 one-hour treatment sessions and frequent but brief telephone calls between sessions. Patterson (1974a) reported an average of 31.5 hours of professional time per case. In addition, Patterson (1974b) reported on four assessment periods during intervention as opposed to one for this sample, and nine assessments during follow-up as opposed to two for this sample. This level of assessment during

intervention would presumably increase the therapist feedback from this measurement source and yield greater reliance on it during the treatment process. This, in turn, might have caused the treatment program to be more directly aimed at this assessment criterion. The frequent assessment during follow-up would presumably enhance the therapists' perception of deterioration during this period and direct his follow-up intervention efforts. Finally, the frequent assessment duirng both intervention and follow-up might, in and of itself, have some effect. Such "reactive effects of testing" (Campbell & Stanley, 1966) might occur because parents would continue to be reminded of the treatment program for their children, and thus be more apt to attend to it. Such reactive effects would seem to be more potent during the follow-up when other forms of contact are relatively minimal.

Perhaps the most obvious difference which might account for the maintenance of treatment gains on targeted deviant behavior not so clearly obtained in the present study is the continued intervention of Patterson and his colleagues during the follow-up period. An average of 1.92 hours of treatment per case was provided by the Patterson (1974a) group while no treatment after termination was provided in the present study.

Several other considerations of less obvious import may also be noted. First, the therapists in the Patterson laboratory tend to be more experienced, both with respect to years of clinical experience and exposure to these kinds of behavior modification procedures. Second, 30% of the Patterson cases were children from mother only homes, while only 14% of the present sample were from such homes. This is relevant because unpublished data from the Patterson laboratory indicates that children from mother-only homes have a far higher level of observed deviant behavior than do others (G. R. Patterson, personal communication, 1974). The actual level of deviance of the two samples cannot be directly compared

because of differences in the coding systems. The children in the Patterson sample were, on the average, a little less than one year older than those considered here and there was a far higher percentage of young adolescents in it (i.e., 24% of Patterson's sample was 12 or over versus 9% in the present sample; Patterson & Cobb, 1973). Finally, the procedures of the Patterson laboratory lead to greater susceptibility of the observers to bias than do those employed in this laboratory where information on cases was restricted. This difference probably does not account for the discrepancies since the bulk of available data on the bias problem indicates that, with a complex code and well-trained observers, biasing information has little effect (Kent, O'Leary, Diament, & Dietz, 1972; Skindrud, 1972; 1973). Kass and O'Leary (1970), however, did find effects associated with biasing information, and this difference between laboratories must be acknowledged.

Although it is impossible to decide with any certainty what variables account for the observed discrepancies, the present writers believe that the most critical involve the amount of time and contact involved in both the treatment and assessment phases of the projects. There was, however, no case in the present sample in which the therapists believed that they should have continued treatment beyond the time at which it was stopped for the further improvement of the child or family. Although increases in therapy time are certainly practical for most applied clinical purposes, the extent of assessment during intervention and follow-up as carried out by the Patterson group would seem generally too expensive and impractical. To the extent that the beneficial affects of the Patterson program resulted from this emphasis on assessment, the generalizability of the therapeutic gains would be open to question.

It should be recognized that the present study is purely descriptive in that a control group was not employed. There are, however, three studies in which control groups have been used on this type of population with similar treatment and assessment programs. The Walter and Gilmore (1973) study already reviewed indicated no significant change on behavioral data or parental report on referral symptoms for the placebo group although parents in this group said their child was improved when asked by their therapists. Wiltz (1969) observed a waiting list control group of six boys similar to the present sample. He found an overall 30% increase in deviant behavior for this group over a five-week no-treatment period. Johnson, Bolstad, and Lobitz (1974) collected home observation and parent report data identical to that used in the present study for a control group of eight children. These children were initially selected on the basis of their behavior problems in school, but, as a group, they showed rates of deviant behavior in the home which were slightly but nonsignificantly higher than those observed for the present sample. The control group parental ratings on the Becker (1960) Bi-Polar Adjective Checklsit were relatively negative but not as negative as those in the present sample. T-tests were performed comparing both mothers and fathers in these two groups on the Composite Factor Score (Factors I + III + V). The ratings of mothers were not significantly different between these two groups at baseline, but fathers' ratings were significantly more negative in the treatment group ($t = 3.17$, $df = 26$, $p < .01$). There were no significant changes in this no-treatment control group in either observed behavior or parent ratings over a two-month period.

The findings of this study lead the present writers toward three basic directions for future research development. First, it seems necessary to develop more assessment instruments which combine the objectivity of home

observation with the specificity of parent data on discrete behaviors. The development of the audio recording procedures referred to earlier would represent one step in this direction. Second, although somewhat expensive and often frustrating, more effort needs to be made in the development of both evaluation and intervention after the termination of regular treatment. Frequent follow-up contact would presumably serve to intercept the development of problematic interactions and result in better maintenance. The use of frequent telephone reporting of referral symptoms as outlined by Patterson (1974a, b) would seem to provide an inexpensive assessment device which could facilitate re-entry to brief supplementary interventions. Finally, it appears that greater understanding of the parental labeling process would improve child-family interventions. Assessment procedures are called for which would indicate what variables (e.g., child behavior, parental expectations, marital distress) determine the parental labels in a given case. Such knowledge would tell the clinician what the real "target" of his interventions should be.

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Footnotes

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[2]Therapists were Gary Birchler, Orin Bolstad, Joanne Valentine Clark, Michael Erickson, Patricia Hines, Dennis Karpowitz, Carole Kirkpatrick, Stephen Kopel, Laurie Lerner, Dalia Leslie, Gretchen Lobitz, W. Charles Lobitz, James McDonald, John Robinson, Jeffrey Steger, John Vincent, Geoffry White, and Marie Rering Witt. Mark Ackerman, Sheila Eyberg and the first author served as supervisors in the initial year. In subsequent years, the first author supervised all cases.

[3]It should be noted here that therapists were encouraged to respond to and treat any personal or marital problems of the parents which occasionally emerged during the course of therapy. While these efforts were less systematically programmed than the child interventions, therapy time was devoted to such problems in some cases. In every case, however, the greater proportion of therapy time was devoted to interventions concerning the child. Thus, the parent training program was viewed as a set of guidelines for family intervention which could be tailored and modified to suite the requirements of each family.

[4]A copy of any of the assessment instruments employed here may be obtained from the authors on request.

[5]This analysis was also not repeated here due to its redundancy and the excessive expense involved.

Table 1

Becker Adjective Checklist Results on Each Factor by Planned Comparisons for Mothers and Fathers

Variable	t-tests Pre versus Post + Follow-up I + Follow-up II	t-tests Post versus Follow-up I + Follow-up II	t-tests Follow-up I versus Follow-up II
Mothers			
Factor:			
I Relaxed Disposition	4.28***	1.20	.74
II Withdrawn-Hostile	3.16**	.19	.53
III Lack of Aggression	4.48***	.53	.77
IV Intellectual Efficiency	3.79***	1.02	.49
V Lack of Conduct Problems	5.24***	.24	.14
Fathers			
Factor:			
I Relaxed Disposition	2.73**	.00	.17
II Withdrawn-Hostile	2.44*	.54	.07
III Lack of Aggression	2.42*	.81	1.30
IV Intellectual Efficiency	1.46	.38	.14
V Lack of Conduct Problems	4.18***	.38	2.06

*$p < .05$
**$p < .01$
***$p < .001$

Table 2

Proportion of Successful Cases by Each Criterion at Each Assessment

Item	Variable: Becker	Therapy Attitude Inventory	Parent Data	Deviant Behavior	Targeted Behavior
Termination: All Cases	.89	.81	.95	.41	.48
Termination: Follow-up Cases	.87	.81	.93	.43	.38
Follow-up I: Follow-up Cases	.87	.67	1.00*	.29	.46
Follow-up II: Follow-up Cases	.92	.72	1.00**	.36	.46
Criterion	≥3	≥4.25	≥30%	≥30%	≥30%

*n = 3

**n = 4

Figure 1

Bi-Polar Adjective Checklist Results for Each Parent at Each Assessment